

What is claimed is:

1. A vessel filtering system, comprising:
  - a guidewire having a proximal end and a distal end;
  - an expandable filter mounted at the distal end of the guidewire;
  - 5 a guiding catheter having a proximal end, a distal end, and a lumen therebetween, the lumen adapted to receive the guidewire which passes through a distal port on the guiding catheter; and
  - an occlusion balloon disposed about the distal end of the guiding catheter.
- 10 2. The system of claim 1, further comprising an angioplasty catheter having a proximal end, a distal end, a lumen which receives the guidewire, and wherein the lumen of the guiding catheter is adapted to receive the angioplasty catheter.
3. The system of claim 1, wherein the expandable filter comprises an expansion frame and a mesh disposed over the frame.
4. The system of claim 3, wherein the mesh is woven.
- 15 5. The system of claim 3, wherein the mesh comprises a thin film having holes to allow fluid flow.

6. The system of claim 3, wherein the frame comprises a plurality of struts bonded to the guidewire at a first end, and which expands radially outward at a second end.

7. The system of claim 3, wherein the frame comprises an inflation seal.

8. The system of claim 1, wherein the guiding catheter includes an aspiration port distal the occlusion balloon, the aspiration port communicating with an aspiration lumen.

9. The system of claim 2, further comprising a stent disposed about the angioplasty catheter.

10. The system of claim 1, wherein the occlusion balloon communicates with an inflation lumen.

11. The system of claim 1, further comprising an atherectomy catheter having a proximal end, a distal end, a lumen which receives the guidewire, and wherein the lumen of the guiding catheter is adapted to receive the angioplasty catheter.

12. The system of claim 1, wherein the guiding catheter includes an infusion port proximal to the occlusion balloon.

13. The system of claim 12, wherein the infusion port communicates with the lumen of the guiding catheter.

14. The system of claim 2, wherein the angioplasty catheter includes an infusion port proximal to the angioplasty balloon.

5 15. The system of claim 14, wherein the infusion port communicates with a perfusion port distal the angioplasty balloon.

16. A method for flushing embolic debris into a filter, comprising the steps of:

providing a guidewire having an expandable filter at a distal end;

10 providing a guiding catheter having an occlusion balloon at a distal end and a lumen extending to a port at the distal end;

inserting the guidewire into a vessel;

advancing the expandable filter beyond a region of interest;

expanding the filter;

15 inserting the guiding catheter over the guidewire and positioning the occlusion balloon proximal the region of interest;

expanding the occlusion balloon to occlude the vessel; and

infusing fluid through the lumen of the guiding catheter to flush atheromatous material into the expandable filter.

17. The method of claim 16, wherein the guiding catheter is inserted over the guidewire before the step of expanding the filter.

18. The method of claim 16, wherein the guiding catheter is inserted over the guidewire before the step of advancing the expandable filter beyond the region of interest.

19. The method of claim 16, wherein the vessel is coronary artery.

20. The method of claim 16, wherein the vessel is the carotid artery.

21. The method of claim 16, wherein the vessel is the internal carotid artery.

10 22. The method of claim 16, wherein the vessel is the subclavian vein.

23. The method of claim 16, wherein the vessel is the iliac vein.

24. The method of claim 16, further comprising the steps of: inserting an angioplasty catheter over the guidewire and within the lumen of the guiding catheter and advancing the angioplasty catheter to the region of interest; and inflating the angioplasty balloon to dilate a stenosis within the region of interest.

25. The method of claim 24, wherein the angioplasty catheter includes a stent, and wherein the step of inflating the angioplasty balloon causes radial expansion of the stent against the stenosis.

5 26. The method of claim 16, further comprising the step of: inserting an atherectomy catheter over the guidewire and within the lumen of the guiding catheter and advancing the atherectomy catheter to the region of interest.

27. The method of claim 16, wherein the guiding catheter includes an infusion port proximal to the occlusion balloon.

10 28. The method of claim 27, further comprising the step of infusing fluid medium or blood through the infusion port to perfuse distal organs.

15 29. The method of claim 16, further comprising the step of: inserting a stent-deployment catheter over the guidewire and within the lumen of the guiding catheter and advancing the stent-deployment catheter to the region of interest, the stent-deployment catheter comprising a self-expanding stent within a sheath; and  
retracting the sheath to release the self-expanding stent within the region of interest.

30. The method of claim 16, further comprising the step of aspirating fluid distal the occlusion balloon.

31. The method of claim 16, wherein the fluid is oxygenated blood.

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